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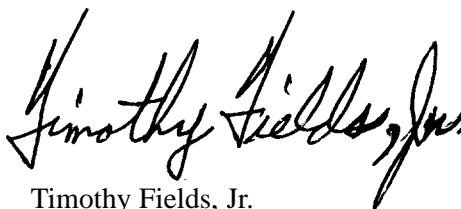
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***On The Cover:** By the year 1990, Bridgeport, Connecticut had become one of the poorest yet most highly taxed cities in the nation. Nowhere in the city was this economic decay more evident than at the former Jenkins Valve site, located directly at Bridgeport's main gateway. Using a portion of a \$200,000 grant provided to the city in August 1994 as part of EPA's Brownfields Pilot Initiative, a site evaluation was performed on the Jenkins Valve property. Based on this evaluation, the Zurich Re corporation stepped in and invested \$11 million to clean up and redevelop the site. An additional \$1 million was provided by Bridgeport, and \$2 million by the state. This long-idle property is now home to a new, 5,500-seat ballpark and will eventually include an indoor ice-skating rink and a new museum. The ballpark project alone created 361 jobs, 68 of which are permanent. The City of Bridgeport has received more than 200 inquiries about this pilot from developers and other investors since the program was initiated.

Message from the Assistant Administrator

The Office of Solid Waste and Emergency Response (OSWER) recognizes that innovation is the key to ongoing achievement in managing solid and hazardous wastes, preparing for and preventing chemical and oil spills, and cleaning up contaminated properties. This report presents an integrated picture of our major innovations and describes how our programs have evolved to meet new challenges and also improve existing ways of doing business.

Many of these innovations contribute significantly to new Agency-wide initiatives that make communities more livable. The programs and projects highlighted in this report are not a comprehensive list of OSWER accomplishments, but snapshots of how OSWER programs have found better ways to protect public health and the environment and how we have started on a path to making communities safer and more livable.

A handwritten signature in black ink, reading "Timothy Fields, Jr." in a cursive script.

Timothy Fields, Jr.

Assistant Administrator

Office of Solid Waste and Emergency Response

U.S. Environmental Protection Agency

SECTION 1

Where Have We Come From?

During the past 20 years, OSWER has made great strides in protecting human health and the environment through safely managing the nation's solid and hazardous wastes and preventing, preparing for, and responding to chemical and oil spills. The Office's accomplishments have made our communities more livable by protecting people, ensuring cleaner land, and safeguarding groundwater, our country's primary source of drinking water. OSWER has translated the mandates of the federal environmental laws it is charged with implementing into positive results for communities.

We accomplished this by continually improving and reinventing the way waste management laws are carried out. By simplifying unnecessarily complex regulations, allowing greater flexibility in the means used to protect the environment, and reducing costs and burden to both regulated entities and regulators, greater environmental protection has been achieved in a more common sense fashion. Innovations over the past decade have resulted in OSWER's programs being smarter, faster, and cheaper.

OSWER has translated the mandates of the federal environmental laws it implements into real results for communities.

By taking a holistic approach to solving environmental problems, we have translated traditional solid and hazardous waste management laws into practical and measurable environmental, economic, and social benefits that improve the quality of life of citizens of the United States by:

- Protecting public health (especially children and special populations) and the environment;
- Saving and creating open space for recreation and wildlife habitat;
- Bolstering local economies; and
- Building safer communities.

Our goal is that these actions will ultimately make communities more livable as we work to restore the land, surface water, and groundwater for productive uses. Many communities today face multiple challenges, including environmental degradation, unemployment, and deteriorating infrastructure. Areas that had once been centers of economic stability have been lost to urban sprawl and have been left behind with Superfund sites, RCRA corrective action sites, and brownfields: abandoned or underused industrial or commercial properties whose redevelopment is complicated by real or perceived environmental contamination. In addition to the negative impacts of sprawl, these contaminated sites pose a direct threat to water quality through polluted runoff and groundwater contamination. Closure of military bases and nuclear weapons facilities pose severe environmental challenges and leave behind similar economic hardships.

By cleaning up brownfields along lakes and rivers, we not only restore the land, but we help support beneficial water uses—industrial, commercial, and recreational—that are inextricably linked to the adjacent land. Through partnerships with communities, we ensure that local stakeholders are empowered to prevent future problems.

This report describes what we are doing to address the nation's waste management problems and where the future challenges lie. We describe the smarter strategies that put specific reforms and broader policy changes into motion. We also discuss the new partnerships we have created with communities and industry. Examples of innovations within each of these chapters will illustrate how OSWER has adapted to a changing world. Finally, we will describe how innovations to our programs are making communities more livable every day.

OSWER's Mission Statement

OSWER provides Agency-wide policy, guidance, and direction for the Agency's solid waste and emergency response programs. We develop guidelines and standards for the land disposal of hazardous wastes and for underground storage tanks. We provide technical assistance to all levels of governments to establish safe practices in solid waste management. OSWER manages the Superfund program to respond to abandoned and active hazardous waste sites and accidental releases (including some oil spills) as well as the encouragement of innovative technologies to address contaminated soil and groundwater.

The majority of these programs are delegated to states for implementation with EPA playing an oversight and technical assistance role. OSWER's customers include other federal and state agencies, associations of the waste management industry, engineering and legal firms, communities, industry, and environmental advocacy organizations.

SECTION 2

How Are We Using Smarter Strategies?

The development of an institutional capacity to innovate is one of the most important changes to occur at EPA during the 1990s. For the past decade, we have fostered a culture of innovation in OSWER to look at environmental problems with a new perspective and to conduct our traditional, core responsibilities in dramatically different ways. The result is that we are developing and using smarter strategies to safely and efficiently manage and control municipal and hazardous wastes and to prevent, prepare for, and respond to chemical and oil spills when they occur.

We were driven to reexamine our traditional culture by a widespread pattern of institutional, social, and technological changes, that by the 1990s, were dramatically altering the landscape of national environmental policy. As state, local, and Native American governments developed more sophisticated environmental capabilities than they had 10 or 20 years earlier, they were exerting broader and more effective environmental leadership. The American people were learning more about environmental conditions in their communities, and they were demanding a more active role in local decisions that affected the local environment. And an increasing number of private businesses were demonstrating more willingness to reduce their pollution voluntarily, even beyond what the law required, because they understood the economic, worker health, and public relations advantages associated with cleaner facilities. As a result, we saw the need—and the opportunity—to take greater advantage of the environmental capabilities and commitments that were springing up throughout American society.

OSWER's emphasis on innovation has changed the way we think and operate—leading to a cleaner environment.

OSWER is a much different place today than it was in the 1980s and early 1990s. We are continuing to simplify many of our regulatory programs, introduce greater flexibility in our requirements, reduce costs, help businesses to better understand and comply with environmental requirements, and improve access to environmental information. Our overall goal remains unchanged—we are still charged with protecting human health and the environment. But the means we now use to fulfill our responsibilities, the partners that have joined to help us, and the involvement of the public are dramatically different from the past. Innovative ideas are changing the way we think and operate, and they are leading to real environmental improvements accompanied in many cases by real reduction in costs.

Using More Tailored, Flexible Approaches

Increasingly, OSWER is relying on a mix of regulatory and nonregulatory approaches to solve and prevent environmental problems. In some cases, this means offering incentives that prompt voluntary environmental improvements. In others, regulations are needed but can be tailored to offer more flexibility in choosing among compliance options.

OSWER has two examples of programs that were designed with the “new” approach from the beginning. Along with the Toxics Release Inventory, the chemical accident component of the

The risks are addressed where they occur—at the local level, without regulatory requirements other than sharing information.

Emergency Planning and Community Right-to-Know Act (EPCRA), is the Agency’s premier community right-to-know program and a pioneer for community-based and information-driven environmental programs. It is focused on state and local action to reduce chemical accident risk through broad-based State Emergency Response Commissions (SERCs), Local Emergency Planning Committees (LEPCs), and with facilities reporting their hazardous chemicals and working with the LEPCs on emergency plans. The risks are addressed where they occur—at the local

level, without regulatory requirements other than sharing information. And by working through our National Response Team, we’ve provided guidance on “One Plan,” which consolidates multiple plans that facilities must prepare to comply with various emergency response regulations. Our Risk Management Program also reflects this fundamental design improvement and is described in greater detail below.

Land Disposal Restrictions (LDR) Reinvention: Under the Resource Conservation and Recovery Act (RCRA), hazardous wastes cannot be disposed of on land unless they meet “land disposal restrictions” treatment standards. These treatment standards require that wastes placed in land-based units be treated to levels that will minimize threats to human health and the environment. Beginning in 1993 with the first LDR Roundtable, EPA waste programs have worked with stakeholders to explore new cost-effective, flexible approaches to streamlining the LDR program. EPA sponsored a second Roundtable in July 1998 to gain new information on how to improve the LDR program.

A soon-to-be published advanced notice of proposed rulemaking (ANPRM) describes the ways in which we might be able to change the LDR program to make it more cost effective, flexible, clear, and enforceable. Specifically, the ANPRM is investigating whether EPA can further encourage the use of innovative treatment technologies as well as source reduction and recycling options. The notice will also take a broad look at stabilization to ensure that the variety of reagents being used are protective of human health and the environment.

One outcome of existing LDR reforms was the development of “universal treatment standards.” Our original treatment standards were set for each specific waste stream individually. This created difficulties in some situations, such as when different waste streams were combined or when the same constituent appeared in different waste streams became subject to different

treatment standards based on which waste stream it was found in. The universal treatment standards changed the requirements to a consistent set of treatment levels for each constituent regardless of the waste stream it is in. Another outcome was the streamlining of paperwork requirements. Analyses conducted on this change showed that the burden to the regulated community was reduced by 1.6 million hours per year. Additional streamlining measures that will further reduce the regulated community's paperwork burden are currently being investigated.

To expedite the cleanup of sites, we developed a tailored set of LDR treatment standards for hazardous contaminated soils. These alternative treatment standards were developed to facilitate the treatment of these wastes with the understanding that the Universal Treatment Standards (UTS), which primarily address industrial hazardous wastes, are not always appropriate or achievable for hazardous soils. Expectations are that these alternative standards will provide the needed flexibility for expedited treatment of hazardous soils.

Setting Risk-Based Cleanup Standards: Several OSWER offices are tailoring cleanups to the expected future use of the site. For example, risk-based standards, which are tailored to the exposure risk expected from future activities, allow less stringent standards for parcels that will be used for industrial purposes as opposed to a residential area. Benefits of this approach include speedier cleanups and cost savings at some sites, which allows cleanup dollars to go further and address more areas.

For example, OSWER has helped state agencies that implement the underground storage tank (UST) program to develop risk-based decision-making processes that they can use to take into account the relative risk UST releases may pose to human health and the environment. OSWER has also supported efforts to help states evaluate UST risk-based decision-making corrective action programs. Early evaluations of these efforts indicate that risk based decision making for UST corrective action programs expedites the remediation and closure of leaking UST sites.

Partial Deletions at Superfund Sites: A National Priorities List (NPL) site usually takes many years to completely cleanup. Some portions of a site may be fully remediated and available for productive reuse before all the rest of the site work is done. We have developed a partial deletions policy to target these areas back into productive use more quickly. Partial deletion of a site can occur when (1) all work has been completed at that portion of the site, including achieving cleanup goals; (2) no further action is needed; or (3) the remedial investigation and feasibility study has determined that the portion of the site is not contaminated, therefore warranting no response action. As of April 2000, clean parcels have been deleted at 18 NPL sites.

**American Cyanamid in
Bridgewater Township,
Somerset County, New
Jersey.**

A 1992 Baseline Site-Wide Endangerment Assessment Report found that there was no current or future unacceptable risks to human health and the environment associated with the Hill Property, a 140-acre subsection of the site. Based on this finding, no remedial actions were required and the Hill Property section was deleted from the NPL in December 1998. The property is currently being developed for commercial use.

From Abandoned Site to Thriving Tomato Farm

Buffalo LTV Steel—Once the perceived stigma associated with being listed in EPA's potentially hazardous waste site inventory (CERCLIS) was removed, a private developer stepped in, cleaned up the 175-acre property, and redeveloped it into a hydroponic tomato farm. The farm now employs more than 175 people and produces more than 60,000 tomatoes every day.

Standardized Permits (RCRA): The Office of Solid Waste (OSW) is developing a standardized permit for RCRA facilities that generate and manage waste on-site in tanks, containers, or containment buildings. The permit will be much simpler and faster than regular RCRA permits. Under the standardized permit, facility owners and operators would certify compliance with generic design and operating conditions set on a national basis. These standardized permits, while simpler and faster, do not compromise environmental and human health protections.

Removing Sites from CERCLIS: Since February 1995 approximately 32,000 sites have been archived from CERCLIS, EPA's inventory of potential or confirmed hazardous waste sites. Sites listed in CERCLIS are evaluated for potential cleanup actions under the federal Superfund program. Sites that no longer warrant federal Superfund involvement are removed from the CERCLIS list and placed on a separate archive list. Archived sites are not necessarily free of contamination. Rather, archiving sites from CERCLIS means that EPA anticipates no further work is needed under the federal superfund program. Archived sites may need further work under other federal or state programs (e.g., RCRA). From a redevelopment perspective, archiving sites means that barring any significant changes in site conditions, the Federal Superfund program should not be a limiting factor in the future development plans for these sites.

Reducing Burden—Reducing Cost—Streamlining

Many of OSWER's innovation efforts have focused on reducing the regulatory burden and cost imposed by environmental requirements to regulated entities and regulators alike. OSWER's efforts have saved millions of hours of paperwork burden by streamlining processes, eliminating outdated provisions, or consolidating duplicative requirements—without sacrificing the Agency's ability to ensure environmental and public health protection. These reduced burdens make it easier and more likely that the private sector will comply with the rules designed to protect human health and the environment. In addition, the cost savings realized can be used to expand current operations or to further invest in the existing workforce—spurring increased economic vitality in the community.

Revisions to the Manifest Rule (RCRA): The Hazardous Waste Manifest System is a set of forms, reports, and procedures designed to seamlessly track hazardous waste from the time it leaves the generator facility where it was produced until it reaches the off-site waste management facility that will store, treat, or dispose of the hazardous waste. The goals of revising the current hazardous waste manifest are to reduce the current information collection burden associated with completing and using manifests to track waste shipments, to reduce variability among the manifests required by different states, and to develop standards fostering an automated approach to the manifest system. To reach these goals, we will propose revisions to the manifest system in September 2000. The proposal will eliminate several obsolete data elements from the form, will replace the current 26 state variations of the manifest with one universal format, and will allow waste shipments to be tracked electronically.

Allied with the rule making is a series of pilot tests during which industry members and states have helped EPA to demonstrate the feasibility of using electronic systems to produce, sign, and transmit manifests. EPA has completed a first phase (an electronic data interchange test) and a second phase (a digital signature test) of the electronic manifest pilot projects. A third phase involving Internet forms and a digitized handwritten signature test is currently underway.

The development of electronic manifest systems should greatly reduce the burden of processing manifests, once a final rule authorizing the new approach is promulgated. Waste management firms with electronic systems should be able to provide a nearly real-time tracking capability for waste shipments, while generators and state agencies will receive much more rapid notification of discrepancies or other problems associated with waste shipments.

The pilot tests to date have demonstrated that manifest data can be transmitted electronically between waste handlers and signed electronically. The manifest process is complex and at times challenging to address with current, off-the-shelf software and hardware. However, the migration toward the Internet and new Web-based data exchange methods, as well as the recent introduction of “wireless Web” technology, has eased many of the perceived barriers. The tests have been a helpful source of data and experience aiding the effort to develop automation

standards for the proposed manifest rule. In developing the electronic manifest forms, we have eliminated data elements that have become obsolete and have been able to include user aids (e.g., pull-down lists of waste handlers and RCRA waste codes) that reduce errors in entering manifest data.

In addition, the manifest automation effort in OSW was a recipient of a 1999 E-Gov Pioneer Award, which was presented to OSW in June 1999, along with a letter from the Vice President acknowledging EPA's cutting-edge efforts to improve the effectiveness of the manifest program with automated technologies.

Reducing the Burden of Submitting Risk Management Plans under 112r: Under Section 112r of the Clean Air Act, facilities that house hazardous chemicals over a certain threshold must submit a Risk Management Plan (RMP) to EPA and state and local government agencies outlining the facility's emergency response and prevention programs and their accident history. RMP is fundamentally performance and risk based. The program is accompanied by an array of tools to assist industry and state implementers. RMP is designed for local action, where the risks are, and depends on information to drive chemical accident risk reduction that makes communities safer.

We created databases for viewing and submitting the Plans, which reduced paper and also the administrative burden on impacted facilities. As of December 1, 1999, 97 percent of RMPs received were submitted electronically using the EPA software, RMP Submit. As noted in the risk management plans information collection requests for FYs 1999 and 2000, the reduction efforts, having impacted areas such as compliance, implementation, and operating and maintenance, resulted in reducing the cost burden by \$36.9 million and the hours burden by 1.1 million.

In addition, our chemical accidents office also reviewed the information collected for costs and burden hours associated with Sections 302-304, 311, and 312 of the Emergency Planning and Community Right to Know Act of 1986 (EPCRA). They took the following actions to reduce burden and costs:

- Re-estimated the universe impacted by the rule makings associated with these sections;
- Used the actual level of effort by state and local entities under Sections 302-304; and
- Finalized a rule changing the threshold levels for gasoline and diesel fuel at retail gas stations under Sections 311 and 312

The results of these actions impacted the burden for compliance, implementation, and operating and maintenance, reducing the costs by \$40 million and the burden hours by \$1.8 million.

As a result, during 1999 and 2000, the chemical accidents office has reduced burden costs by \$76.9 million and burden hours by 2.9 million.

RCRA Reporting and Recordkeeping: We are aggressively working to reduce the burden imposed by the RCRA reporting and recordkeeping requirements by 40 percent. This will help us meet the government-wide goal established by the Paperwork Reduction Act (PRA). We have already reduced 15 percent of the burden for the regulations OSW implements under RCRA since 1995 (the PRA baseline).

In June 1999, OSW presented many ideas for eliminating or streamlining OSW's reporting and recordkeeping requirements in a *Federal Register* Notice of Data Availability.

We are now drafting a proposed rule making to implement many of these ideas and hope to publish the proposal in February 2001. We estimate that these items could reduce RCRA burden by as much as 3 to 4 million hours. Most importantly, these burden reductions will not compromise our standards for safe waste management that protect human health and the environment. These proposals are designed to eliminate duplicative and nonessential paperwork.

The ideas in the current draft of the proposed rule making cover five themes, including (1) allowing facilities to submit all information and keep all records electronically; (2) reducing the reporting requirements for generators and treatment, storage and disposal facilities by one-third; (3) streamlining or eliminating four of the major recordkeeping and reporting requirements imposed by the LDR program; (4) changing the inspection requirements for owners/operators of hazardous waste tanks from daily to weekly; and (5) reducing the burden of RCRA personnel training requirements to allow for deferral to OSHA standards for emergency response training.

Reducing Costs—Pay-For-Performance: The Office of Underground Storage Tanks (OUST) is helping states to implement common-sense economic incentives to spur faster environmental results, private-sector innovation, and lower cleanup prices via Pay-For-Performance (PFP) cleanup contracting. PFP sets a fixed price for a cleanup and pays cleanup contractors as they produce contamination reductions. In three years, approximately 300 PFP cleanups are now in progress in 14 states and the few earliest PFP cleanups are now beginning to close successfully on time, within the price originally set. More states are adopting PFP in FY 2000, states already using PFP are increasing the number of PFP cleanups, and additional states are awaiting OUST assistance to start PFP programs. Lowest-price bid awards are further reducing cleanup prices without compromising environmental results.

Reducing Costs—Remedy Review Board: EPA created the National Remedy Review Board (NRRB) in January 1996 as part of a comprehensive package of reforms designed to make the Superfund program faster, fairer, and more efficient. The NRRB is essentially a peer review group that understands both the EPA regional and headquarters perspectives in the remedy selection process. It reviews proposed Superfund cleanup decisions that meet cost-based review criteria to assure they are consistent with Superfund law, regulations, and guidance. The NRRB is composed of managers, senior technical staff, or policy experts. To date, the NRRB has reviewed more than 43 cleanup decisions and generated approximately \$70 million in estimated cost reductions without compromising the environmental integrity of cleanups.

Example: The Anaconda Smelter site covers 5,000 acres in Anaconda, Montana. The smelting operation, operated on site from the late 1800s until it closed in September 1980, contaminated much of the area with heavy metals and other dangerous substances. A key part of EPA's cleanup plan is to use revegetation to prevent contamination from spreading and to protect the public and ecosystem from the site contamination. The NRRB reviewed the proposed cleanup decision for the Anaconda Smelter Superfund site in March and April of 1997. The Board offered several

recommendations for the Region to consider as they finalized their cleanup plans. EPA Region 8 responded with a proactive, creative approach to dealing with board concerns.

Among the actions Region 8 took was to devise an inventive decision-making system that helped them focus their revegetation efforts. To develop the system, the Region took into account a vast amount of data gathered at the site and during the public comment period on the proposed cleanup. In cooperation with those responsible for cleaning up the contamination, as well as the State of Montana and community stakeholders, the Region is using its system to assess physical and chemical data and vary the site revegetation levels. Thus, they are able to improve the cost effectiveness of their cleanup without sacrificing the level of protection it provides. These efforts, in part, enabled the Region to revise their cost estimate for the site from approximately \$180 million to an estimated range of \$90 million to \$160 million.

Choosing A Cost-Effective Remedy

At the Avco Lycoming site in Pennsylvania, the ground water is contaminated with metals and organics. The original remedy selected in 1991 was to construct a conventional pump-and-treat system. Through pilot tests during remedial design, it was discovered that the treatment of metals could be enhanced using an innovative technology of molasses injection. It was estimated that the cleanup time would be reduced by one-third and generate an estimated savings of \$5.3 million compared to the original remedy.

Reducing Costs—Updating Remedy Decisions (CERCLA): A cost-reduction initiative, also started in 1996, was to encourage Regions to revisit selected remedy decisions at sites where significant new scientific information, technological advancements, or other considerations suggest an alternative remedy will be protective while enhancing the cost effectiveness of the cleanup. From 1996 through 1998, EPA and other involved parties updated more than 300 remedies and generated estimated future cost savings of more than \$1.4 billion.

RCRA Corrective Action Cleanup Reforms: This important initiative has created a faster, focused, more flexible program that is already producing successful cleanups at a rate 10 times that of the previous 15 years. Moreover, the reforms have been heartily embraced by businesses, citizens, and the states, and there is renewed national urgency in cleaning up hundreds of contaminated RCRA facilities.

For decades, industrial facilities mismanaged their hazardous wastes. Thousands of active industrial facilities still suffer the legacy of this

past mismanagement. Some of these facilities—particularly those that have been abandoned or closed—are being addressed under the Superfund program. A significantly larger number, however, fall to the RCRA Corrective Action Program, administered by EPA and the authorized states. The cleanups involve some of the most intractable and controversial remedial facilities in the country: dozens of petroleum refineries and chemical plants, virtually every integrated steel mill, huge federal facilities, scores of wood treaters, explosive manufacturers, metals recyclers, and similar industrial facilities where hazardous wastes have been mismanaged for many years. The costs of cleanup at these facilities can be staggering and the technical challenges overwhelming.

Progress in cleaning up the roughly 3,500 facilities subject to corrective action has been slow over the program's 15-year history. In fact, at the beginning of 1997, only 47 of the 1,700 worst facilities—those presenting the highest risk—had controls in place to prevent exposure to humans and migration of contaminated groundwater. Despite past regulatory, policy, and guidance efforts, the program remained mired in process and locked into an oversight regime that effectively prevented many businesses from even starting their cleanups for lack of available state or federal personnel to monitor their work. Lastly, the program had failed to capitalize on the very capable cleanup work accomplished by state programs operating under legal authorities other than RCRA. So we made major reforms in the program that have resulted in achieving, in 1999, a bigger increase in environmental accomplishments than the 15 previous years combined.

Concern over the slow pace of RCRA cleanups as well as impetus provided by an aggressive 2005 cleanup target date under the Government Performance Results Act, pointed to the need for an overhaul aimed at changing the way regions and states oversee facility cleanups in the field. This culture change could only be achieved if the reform effort was embraced both by regional and state implementors as well as industry and citizen groups. In response, the RCRA Corrective Action Program developed and implemented a package of visionary program reforms—fully supported by stakeholders—that are fundamentally altering the national approach to cleaning up industrial contamination.

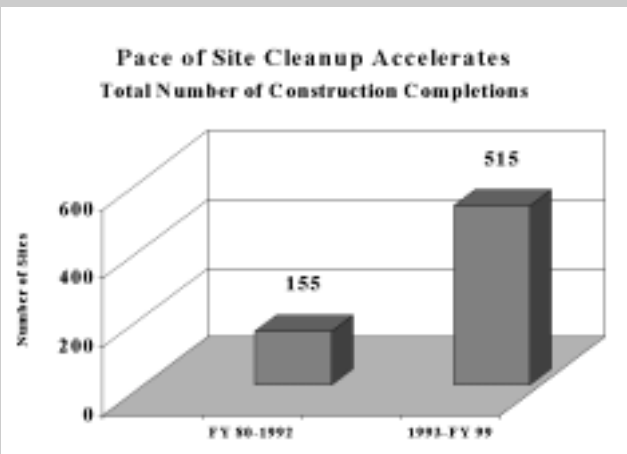
As a first step, traditional “bean-count” performance measures were replaced with Environmental Indicators—measures that reflect actual mitigation of human exposure to contaminants and control of migrating groundwater plumes. Next, the new measures were established as the GPRA targets, making it clear that for this program, “success” means achieving environmental results.

Another key component of the reforms was an aggressive overhaul of the way the corrective action program is implemented. In response to what industry, the states, and the public agreed were regulatory and policy barriers to swift cleanups, the program produced a mix of targeted regulatory and policy fixes aimed at eliminating those barriers. Among these was the “HWIR-Media” Rule that offers real relief from RCRA land disposal and permit requirements that unnecessarily stifle companies’ cleanup efforts at contaminated properties. At the request of EPA’s state partners, a long-standing, comprehensive rule making proposal was withdrawn, freeing the states to employ more flexible, innovative cleanup approaches. To change the program “culture,” a four-day “hands-on” training program was developed and offered throughout the nation for federal, state, and industry remediation experts. To date, more than 700 attendees have learned the new direction, the new tools, and the new oversight approaches to speed facility cleanups. The remaining workshops are a sellout and have proven themselves a successful driver of “culture change.”

Leveraging community interest and involvement in facility cleanups is crucial to speeding the pace of cleanups nationwide. Recognizing this, the program worked with regions and states to verify the name and address of each of the 1,700 facilities that are the highest priority for cleanup. These were placed on an Internet site so that stakeholders can monitor the cleanup progress at each of these facilities. This announcement alerted industries of their responsibility to address contamination at their facilities. Equally important, states and regional implementors are now keenly aware that their approach to guiding cleanups is under increased public scrutiny.

What is a Construction Completion Site?

A Construction Completion Site is a former hazardous waste area where physical construction of all cleanup remedies is complete, all immediate threats have been addressed, and all long-term threats are under control.



In September 1999, regions and states posted cumulative FY 1999 accomplishments of 477 facilities with controls for human exposures and 440 facilities with controls for contaminated groundwater. This remarkable turnaround not only put the program back on track to meet 2005 goals, but was proof that efforts to steer the program toward success were taking hold in the field and

Landfill Presumptive Remedy Saves Millions in Costs

At the BFI/Rockingham site in Rockingham, Vermont, the municipal landfill presumptive remedy was implemented as an early action. The remedy included a landfill cap and leachate and gas collection systems. As a result of implementing the presumptive remedy as an early action, significant time and cost savings were realized in conducting the remedial investigation/feasibility study (RI/FS). The cap was completed three years after initiation of the RI/FS, and an estimated \$3 million was saved, based on estimates by the responsible party for the remedial action. (For more information, see "Landfill Presumptive Remedy Saves Time and Cost," EPA Directive No. 9355.0-661, January 1997.)

producing results. More importantly, the new cleanup approaches are paving the way to ultimate remediation of industrial facilities and the productive reuse of these properties.

Streamlining—Superfund Construction Completions: We increased Superfund productivity—from completing construction at 65 sites per year to achieving this at at least 85 sites per year in each of the past three years. As of September 30, 1999, 92 percent of the sites on the NPL are either undergoing cleanup construction (remedial or removal) or are completed. In the past seven years (FY 1993-1999) we have accomplished more than three times the number of construction completions than in the program's first 12 years combined.

Presumptive Remedies (CERCLA): As we gained more experience cleaning up hazardous waste sites, it became clear that some categories of sites have similar characteristics, such as types of contaminants present, past industrial use, or environmental media affected. The presumptive remedy initiative looks for remedies that are appropriate for specific site types or contaminants. Its objective is to use the program's past experience to streamline site investigation and make remedy selection speedier and more predictable.

Using Innovative Technologies

During the last decade, OSWER has explored ways to develop and test innovative ways to prevent, assess, and cleanup environmental contamination at industrial and other properties located in communities across the country. OSWER, with its private and non-profit sector partners, have embarked on a journey to learn from each other and the past to better manage the nation's hazardous and solid wastes. These efforts have contributed to faster cleanups and minimized waste that was sometimes a result of older technologies and methods. We have sponsored Strategic Technology Exchange Workshops (STEWs) in which states were brought together to share their successes and failures in using proven but not widely used alternative UST remediation technologies. Another example from our Superfund Administrative Reforms shows how such innovation is applied at an actual site.

Somersworth Sanitary Landfill, Somersworth, New Hampshire EPA entered into a risk-sharing agreement with a potentially responsible party (PRP) at the Somersworth Sanitary Landfill site. The Agency agreed to pay half the cost of the innovative technology (not to exceed \$3.5 million) if the technology did not fulfill expectations and additional remedial action is necessary. The technology involved—an innovative “funnel and gate”—helps restore groundwater by channeling the flow to a permeable wall containing iron filings. Contaminants are removed as they pass through the gate. If successful, this in situ technology may serve as an alternative to costly and protracted pump and treat approaches.

TechDirect E-mail Service: Our Technology Innovation Office (TIO) has harnessed the power of the Internet and the ability to target clients to bring new information and change attitudes toward the use of new clean up technologies, especially among EPA and its partners in the states. On the first day of every month, 1,200 state cleanup professionals along with 5,300 other professionals in the engineering community around the world receive a two-page message highlighting important new developments, publications, and events related to site assessment and remediation technologies. The subscriber list was initially “seeded” with state and federal remediation professionals and has grown by several thousand in the past year. This information sharing is “ecumenical” and includes information from beyond EPA's waste programs to include states and other federal agencies. The format is easy to follow and it allows state and federal hazardous waste professionals to stay abreast of current remediation and environmental developments without spending hours “surfing the Net.”

Innovative Uses of Compost: During the last decade, OSWER has worked with state and federal agencies to test ways of cleaningup contaminated brownfields sites using compost. Compost bioremediation is currently being used in a variety of ways, including remediation of munitions-contaminated soils and soils contaminated with hydrocarbons and pesticides. These cleanup projects have been shown to cost effectively return a site to its precontamination condition and revegetate the area. This technology has resulted in successful cleanup of abandoned and contaminated sites more quickly and cheaply than traditional remediation technologies such as incineration.

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SECTION 3

How Are We Creating Better Partnerships?

Over the last decade, OSWER has worked more constructively and productively with its traditional partners—state and local governments, tribes, and other federal agencies—to administer hazardous waste programs. These partnerships have enabled stakeholders to combine resources, share “best practices,” and reduce duplicative and overlapping efforts among levels and branches of government. Increasingly, we are forming successful partnerships with the private sector that have spurred innovation, ensured compliance with environmental regulations, and encouraged industry to make improvements that go beyond what is required. We have made significant progress in building better partnerships with communities to help them address local environmental issues more effectively, such as cleaning up and redeveloping abandoned brownfields sites. Reinforcing existing partnerships and building new ones has helped OSWER and its stakeholders meet program objectives and share solutions, ideas, and approaches to environmental issues.

OSWER's more flexible and collaborative partnerships have produced better results.

Working with State, Local, and Tribal Governments

State and local governments and organizations have greater knowledge of local needs and priorities. Therefore, OSWER continues to work to build state and local capacity and facilitate information exchange among state and local governments on best practices.

Risk Management Plans: Improving public accessibility and understanding of chemical information is a major component of Section 112r of the Clean Air Act. To encourage and support action at the local level, the Chemical Emergency Preparedness and Prevention Office (CEPPO) provides funding, guidance materials, and technical assistance to states that are seeking to administer the program themselves or have it delegated to them by EPA. To date, nine states have received delegation to administer their own 112r program and 10 are in the process of seeking delegation.

Creating the State Coalition for Remediation of Drycleaners: A successful state/federal partnership supported by our Technology Innovation Office has brought 10 states together with a common interest in cleaning up old dry cleaning sites, a local environmental issue in most communities. Through the coalition, states exchange information on implementing dry cleaner remediation programs and using innovative technologies in dry cleaner site remediation.

Brownfields Assessment Demonstration Pilots: To date, EPA has funded more than 300 Brownfields Assessment Demonstration Projects. EPA awards grants of up to \$300,000 over two years to communities trying to overcome the blight of brownfields. These funds do not pay for the cleanups themselves, but provide seed money for the environmental assessment and planning that allow communities to attract other investments, often from the private sector, for cleanup, revitalization, and economic growth. Almost \$2 billion in public and private investment has been leveraged for brownfields development, and more than 5,000 local jobs have been created since the inception of this innovative program.

Tribal Solid Waste Interagency Workgroup: OSWER is co-chair of the successful Tribal Solid Waste Interagency Workgroup that, since 1998, coordinates funding for tribes to clean up high-threat solid waste open dumps.

Through the Tribal Open Dump Cleanup Project, the Tribal Solid Waste Interagency Workgroup funds proposals that support the development of tribal or multitribal solid waste management programs. Approximately \$2 million annually has been made available to help clean up problem waste dumps on tribal lands. Specific goals of the Cleanup Project include assisting tribes with (1) completing and implementing comprehensive, integrated waste management plans; (2) developing realistic solid waste management alternatives; (3) closing or upgrading existing open dumps; and (4) developing post-closure programs. The eight agencies participating in the Workgroup and providing funds for the Open Dump Projects include the Departments of Interior, Health and Human Services, Defense, Agriculture Transportation, and Commerce.

Partnering with Communities to Support Local Decision Making

OSWER is helping communities to address local environmental issues more effectively and make informed choices by providing resources, information, and technical assistance to support local decisions and decision-making processes. These partnerships work because they respond to unique community concerns, pool stakeholder resources, and coordinate public and private actions in an effort to resolve local issues locally.

Brownfields Cleanup Revolving Loan Fund (BCRLF): In addition to the successful assessment grants, EPA provides grants to start local revolving loan funds for cleanup. BCRLF bridges the gap for communities as they move beyond assessing to cleaning up their brownfields. States, counties, cities, and tribes that previously received brownfields assistance may apply for additional funds of up to \$500,000 to provide loans to public and private entities involved in local economic redevelopment. Loan repayments provide continuing funds for new loans, dramatically increasing the number of brownfield cleanups over time.

Through the BCRLF program, EPA has awarded a total of \$40.2 million to 68 communities to help bridge the gap between environmental assessment and cleanup/redevelopment. For example, Stamford, Connecticut, the first pilot project to use the loan fund, has leveraged a \$250,000 loan into more than \$50 million in private redevelopment funds. The loan also is expected to generate between 100 and 200 construction jobs and 12 full-time, permanent administrative jobs in Stamford.

Draft Guide and CD-ROM for Industrial Waste Management: In 1999, OSW developed the *Draft Guide and CD-ROM for Industrial Waste Management*. This Guide and CD-ROM, which address the management of industrial nonhazardous waste, were developed in an open forum and in partnership with representatives from the environmental, industrial, and regulatory (including states) communities.

The Guide and CD-ROM are designed to assist facility managers, state environmental agency staff, and the interested public in discussing, evaluating, and choosing protective practices for the management of industrial nonhazardous waste in new landfills, waste piles, surface impoundments, and land application units. The Guide and CD-ROM provide comprehensive and flexible approaches, tailored to potential risk, that cover all the components of a sound waste-management system and emphasize protecting all environmental media (i.e., groundwater, surfacewater, and air).

Community Advisory Groups (CAGs): As part of the second round of Superfund Administrative Reforms, in 1995 EPA began encouraging communities to establish CAGs to help in the cleanup planning and decision-making process. A CAG is made up of representatives of diverse community interests. Its purpose is to provide a public forum to raise and discuss community concerns and interests related to a Superfund cleanup. As of September 1999, CAGs have been established at 51 Superfund sites.

Revisions to Superfund Technical Assistance Grants (TAG) Rule (Superfund): To make it easier for communities to receive grants to better understand how cleanups can be tailored to support the future site uses, revisions are underway to simplify the application and administrative processes and reduce reporting burdens. The revised rule will propose to eliminate (1) the requirement that budget periods may not exceed three years; (2) the 20 percent ceiling for administrative costs of a grant so that recipients do not need to differentiate between programmatic and administrative cost; and (3) the distinction between sole and multiple applicants, since both applicants must meet identical criteria. This rule is expected to be signed by the Administrator in June 2000.

Public Participation in Permitting Issues: Stemming from the Second Generation of Environmental Permitting Action Plan, OSWER is leading an Agency-wide workgroup to improve public participation in all the EPA permitting programs. Our "Draft Reference Guide for Public Participation Activities in the Permitting Process" provides a baseline of information on the current permitting process and what the opportunities are for involving the public for all permitting programs. The primary audience is program implementors (states) so that they can use this guide as a toolkit of resources and best practices in public involvement.

How A CAG Made the Difference

"The CAG has helped the community to be more informed and involved in site issues. I doubt that work ever would have gotten underway at the site if the CAG had not been formed. There was little cooperation among community groups before the CAG was formed, and many groups did not understand what was going on at the site. The CAG has provided a central point for information about the site, and the community groups have gained an understanding and sense of perspective about the work involved. The CAG has diffused a number of potential problems. Because of the CAG, a decision-making process is in place to handle other problems that may arise." *Johnny Horne, Chairman, Alton Woods/Piney Woods Community Advisory Group (Region 4)*

Stakeholder input on the Reference Guide will ensure that this is a relevant and valuable tool for state program implementors and the public at large. Currently, the Guide is undergoing review by an external group of community involvement experts, as well as the Public Participation workgroup under NEJAC and the Cross-Media Committee of the Environmental Council of States. We plan to have the Guide available in August 2000 at www.epa.gov/permits.

Local Government Reimbursement Program: This program provides federal funds to local governments for costs related to temporary emergency measures conducted in response to releases or threatened releases of hazardous substances. The program serves as a “safety net” to provide supplemental funding to local governments that do not have funds available to pay for these response actions. Eligible local governments may submit applications to EPA for reimbursement of up to \$25,000 per incident.

Local governments have applied to the program to seek reimbursement for such things as personal protection equipment that is damaged beyond repair and laboratory or contractor services associated with a response. In some situations, EPA is the only place that a local government can recover these costs. Reimbursement from this program can make a significant contribution to the protection of human health and the environment in some communities. More than 250 local governments have received reimbursement since the program’s beginning in 1986. Those applications are for tire fires, mercury releases, abandoned drums, transportation accidents, clandestine laboratory cleanup, and other hazardous substance response.

State Voluntary Cleanup Programs: OSWER is providing more dollars to help states efficiently and quickly address hazardous waste sites that are contributing to urban blight. More than 40 states have developed voluntary cleanup programs to address the need for cleanup standards and oversight for hazardous waste sites. EPA supports these state voluntary programs by providing funding for capacity building and program set up. In FY 2000, EPA is providing states and tribes with \$10 million to support development and enhancement of their programs resulting in greater sophistication at the state and local level. EPA has signed memoranda of agreements with 14 of these state programs.

LandView III: OSWER has developed a useful tool to examine the relationship of environmental sites to different populations based on income, race, and other demographic features. Landview III is a Community Right-to-Know software tool and the most recent in a series of electronic tools developed by OSWER’s Chemical Emergency Preparedness and Prevention Office. LandView III provides database extracts from EPA, the Bureau of Census, the U.S. Geological Survey, the Nuclear Regulatory Commission, the Department of Transportation, and the Federal Emergency Management Agency.

Computer-Aided Management of Emergency Operations (CAMEO): In cooperation with the National Oceanic and Atmospheric Administration, we have developed the CAMEO to assist state and local authorities and industry to plan for and respond to chemical emergencies. CAMEO consists of a chemical reference database, methods for entering information on facilities that store dangerous chemicals, an air-dispersion model, and a simple mapping

program that displays local streets, chemical facilities, and other landmark features. CAMEO is used by thousands of fire departments, State Emergency Response Commissions (SERCs), Local Emergency Planning Committees (LEPCs), and other state and local government entities around the country. CAMEO is also used in many foreign countries and has been translated into French and Spanish.

Job Training Efforts: In communities throughout the nation, people with specialized training are employed in cleaning up, transporting, and disposing of hazardous and nonhazardous waste. OSWER has several programs in place that are designed to ensure that new jobs created in this area can be filled by qualified people drawn from the local community, thereby generating a dual benefit for these communities.

Brownfields Tax Incentives: Brownfields issues can't always be worked out within individual cities or communities; in some cases, they have to be addressed more broadly at a national policy level. In the past, for example, disincentives for cleaning up brownfields property were buried within the national tax code. Expenditures for cleanups had to be capitalized or deducted from taxes over time. The 1997 Taxpayer Relief Act removed this disincentive. Now, cleanup costs for properties in targeted areas can be fully deducted during the year that expenses were incurred. This new allowance provides an additional financial incentive for communities and private interests to bring brownfields sites back into productive use. Passage of the Brownfields Tax Incentive has enabled the federal government to help level the playing field between brownfields and previously unused greenfield sites. The \$0.3 billion incentive is expected to leverage \$3.4 billion in private investments and return some 8,000 brownfields to productive use.

Site Specific and Restoration Advisory Boards: When communities share information and become involved in environmental decision making at federal facility sites, site cleanups are faster and more targeted. Increased community understanding of cleanup issues and progress leads to more opportunities for the community to participate in the cleanup process and provide more credibility. OSWER's Federal Facilities Restoration and Reuse Office (FFRRO)'s "Blueprint for Action" outlines a comprehensive program to increase stakeholder involvement at these sites. Forming Site Specific and Restoration Advisory Boards helps overcome decades of community distrust towards the federal government.

Community Involvement Pays Off at Fernald

The Fernald Environmental Management Project is a former uranium processing facility located in southwest Ohio. Recently, the International Association for Public Participation (IAP2) presented the Department of Energy with the Public Participation Organization of the Year Award during a Fernald Citizens Advisory Board (FCAB) meeting. This international award is presented to an organization that best reflects the group's core values for involving the public in decision-making processes.

The Board's recommendations and advice helped steer the site toward an accelerated cleanup that trimmed years from the original cleanup estimate, resulting in an estimated savings of \$3 billion dollars. John Bradburne, President and CEO of Fluor Fernald, said, "Some of the best courses of action we have taken during the cleanup have come directly from our neighbors."

Creating Public/Private Partnerships

One of the most telling indicators of progress at OSWER over the past decade is the more cooperative, productive partnerships that now exist with the business community. These partnerships have brought new hazardous waste technologies to the marketplace, identified more cost-effective ways of meeting the requirements of environmental regulations, and led to better stewardship of environmental programs, while improving environmental quality.

Partnerships in Risk-Based UST Corrective Action Implementations: We took a unique approach to meeting the training and assistance needs for state implementation of UST risk-based decision making through a national public-private partnership. This included stakeholders from the petroleum industry, trade associations, cleanup contractors, consultants, UST owners and operators, insurance companies, bankers, environmental groups, and state implementing agencies. OSWER continues to foster public private partnerships by supporting regional stakeholder meetings in which UST regulators (i.e., EPA various states) and the regulated community can come together to identify ways to overcome impediments to addressing UST cleanups efficiently and effectively.

Involvement in Project XL: OSWER is participating in a cross-agency initiative to work collaboratively with regulated entities to test innovative approaches in meeting and exceeding environmental performance while simultaneously reducing cost and burden. Project XL is one of the Agency's flagship reinvention efforts, and most of these pilot projects contain a RCRA component. Extended accumulation periods and conditional delistings have been prominent features in several XL pilot projects, and we have been able to test other ideas with our state partners in a variety of pilots.

In the New England Labs project, OSW worked with Region 1 to complete both proposed and final rules that allow participating university laboratories to replace certain existing hazardous waste generator requirements with a comprehensive environmental management plan designed for each laboratory. We expect better environmental results by setting ambitious goals for a 10 percent waste generation reduction and a 20 percent increase in the reuse of lab wastes.

Through Project XL, the HADCO Corporation's printed wiring boards and electronic facilities in three locations removed the sludges created as a by-product of its operations from regulation under RCRA. This agreement was signed on the condition that the sludges be sent directly to be recycled. Because of the process changes since the 1970s, HADCO believes that the sludges created as a by-product of its operations are far less toxic and no longer need to be regulated as a hazardous waste. One hundred percent of the cost savings realized from this project will be directed toward expanding HADCO's recovery of recyclables from wastes and to further prevent pollution.

OSW is also working with Regions 3, 4, and 9 on several XL projects to complete site-specific rules that will allow municipal solid waste landfills to recirculate leachate and to operate “bioreactor landfills.” Provisions in the municipal solid waste landfill (MSWLF) criteria prohibit leachate recirculation at an MSWLF unless the unit has a composite liner as described in these regulations. Recently, various stakeholder groups have suggested that there are alternative liner designs that would work as well as, if not better than, the specific liner designs currently required by the criteria. These XL projects will provide data to test alternative liners resulting in more cost-effective waste disposal and improved environmental quality by accelerating waste degradation in a controlled fashion.

In recent years, bioreactor landfills have gained recognition as a possible innovation in solid waste management. The bioreactor landfill is generally defined as a landfill operated to transform and more quickly stabilize the organic constituents of the waste stream by purposeful control to enhance microbiological processes. Bioreactor landfills often employ liquid addition, including leachate recirculation, to enhance this process. Benefits of this approach may include saving landfill space and reducing long-term post-closure care through accelerated decomposition of municipal solid waste.

Common Sense Initiative (CSI): Beginning in 1993, CSI developed cleaner, cheaper, smarter environmental protection strategies for specific industry sectors. The goal of CSI was to create a more tailored approach for six industry sectors: metal finishing, computers/electronics, petroleum refining, autos, printing, and iron/steel. Through CSI, representatives from industry, states, and environmental interest groups identified many ways to improve the way we protect the environment. These participants made formal recommendations to EPA, and OSWER has made specific regulatory changes to integrate them into our core programs.

The **Computers and Electronics** subcommittee agreed that EPA should promulgate a rule under RCRA that would tailor RCRA waste management standards to promote the recycling of cathode ray tubes or CRTs (found in television sets and computer monitors) that contain lead. Currently, CRTs are regulated as hazardous wastes because of their high concentration of lead. They are often not recycled because of several regulatory barriers and because the infrastructure for collection and recycling is underdeveloped.

Our proposal would encourage recycling by removing regulatory barriers such as permitting and manifesting requirements, and replacing them with a more streamlined, yet protective set of standards developed by the CSI Computers and Electronics subcommittee. We plan to publish a proposal in the summer of 2000.

The **Metal Finishing** sector recommended that EPA extend the amount of time that facilities are allowed to accumulate electroplating wastewater treatment sludges on site without triggering the requirement to get a permit, as long as the waste is sent for recycling. Under existing accumulation time limits, landfilling or disposal is often less expensive than recycling. Our collaborative effort in CSI has resulted in a final rule that extends the current 90-day accumulation time period to 180-270 days if a generator is sending the waste for recycling. By allowing facilities to accumulate wastes for longer periods if they recycle, recycling will become more economically feasible.

OSWER has continued to work with a multistakeholder workgroup on ways to improve stewardship of F006 metal-containing sludges. The group has determined that encouraging the use of ion exchange technology for recovery of metals is an important next step. OSW is currently supporting an XL project looking into this issue and beginning work on a national rule making.

OSWER co-chaired the CSI **Petroleum Refining** subcommittee and provided leadership in setting its agenda for innovations in a variety of areas. Through our CSI work, the petroleum refining industry developed a way to significantly reduce the regulatory burden associated with reporting on air emissions under the Clean Air Act requirements. Through a pilot project, the industry and its stakeholders created more flexible reporting schedules and formats. In addition to reducing the regulatory burden, this model reduced regulatory agency review time and improved community understanding and access to environmental information about the facility. The stakeholders made formal recommendations to EPA on ways to improve reporting efficiency and data accessibility for the refining industry and their neighboring communities nationwide.

Waste Wise Program: The program is an EPA voluntary partnership program through which businesses, governments, and institutions reduce waste and thereby benefit their bottom lines and their environment. Currently, nearly 1,000 environmentally conscious partners receive technical assistance and recognition for their municipal solid waste reduction efforts. Since the program began in 1994, *Waste Wise* partners have reduced their municipal solid waste by more than 26 million tons and have moved from merely complying with federal environmental regulations to seeking new ways of improving the environment.

The Remediation Technologies Development Forum: OSWER's Technology Innovation Office has found external partnerships to be a critical approach to finding better solutions to the nation's waste remediation problems. One such partnership is the Remediation Technologies Development Forum (RTDF). The RTDF, established in 1992, successfully fosters collaboration between the public and private sectors in developing innovative solutions to mutually recognized hazardous waste problems. Functioning through six self-directed action teams, the RTDF has grown exponentially to include several hundred participating individuals, including 70 active partners from industry, government agencies, and academia. The common goal unifying these individuals is to develop more effective, less costly hazardous waste treatment technologies for cleaning up soil and groundwater.

Collaboration with Other Federal Agencies

Partnerships with other federal agencies have brought together a powerful range of technical assistance, expertise, and resources to solve environmental problems of mutual interest and concern, creating a better means for addressing local environmental problems.

The Brownfields National Partnership: Under the multiagency partnership spearheaded by our Outreach and Special Projects Staff, federal agencies have provided more than \$400 million in assistance to brownfields, according to an April 1999 General Accounting Office (GAO) report on brownfields. The partnership has completed more than 1,000 commitments from 18 federal agencies, including direct funding, technical assistance, and information dissemination. This approach more effectively links environmental protection with economic development and community revitalization programs by gathering specific commitments from agencies with the full range of needed resources to support brownfields efforts.

Fast-Track Cleanup Program at Federal Facilities: By employing a collaborative approach between the local community, EPA, state environmental agencies, and the military services, OSWER has set up the fast-track program to speed cleanup and economic recovery in base closure communities.

A key component of this success is the Base Cleanup Team (BCT) comprised of EPA, state environmental staff, and the military service Base Environmental Coordinator. EPA's dedicated efforts through the BCTs and its fast-track program enable quicker cleanups, reduce costs, and expedite property transfer. Through FY 1999, this approach has helped to reduce estimated project durations by almost 300 years and avoided almost \$300 million in potential project costs.

Sacramento Army Depot in California

A BCT facilitated the implementation of an innovative technology that significantly increased the pace of cleanup. Although it was originally estimated that part of the site would take years to clean, the cleanup was accomplished in only months, allowing the property to be transferred to the private sector. Packard-Bell relocated its world headquarters to the former installation and created more than 3,000 new jobs.

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SECTION 4

Where Are We Headed?

Livability promotes continued investment in already industrialized areas, with two very important outcomes: our inner cities can return to vibrant and safer places to live and work and less suburban farmland and wildlife habitat will be put into industrial uses. OSWER's programs are on a path to making communities safer and more livable by leveraging the multiple agendas of economic development, open space protection, and job creation.

OSWER's emphasis on local benefits and results have set us on a path to making communities more livable.

Working Directly With Communities

Brownfields Economic Redevelopment Initiative: The Brownfields program is taking a holistic approach in working with local communities to address the assessment, cleanup, and redevelopment needs of abandoned and potentially contaminated sites in communities all around the country. Active in more than 300 communities, the Brownfields program combines the expertise of more than 20 federal agencies, innovative assessment, and cleanup technologies and approaches and works to develop local capacity to transform blighted sites into productive areas for communities. We are also concentrating on the problems of abandoned or idled industrial and commercial (UST) facilities. In addition, the OSW Brownfields Landfill Redevelopment Initiative works with state and local communities to address the assessment, cleanup and redevelopment needs of abandoned, closed, and potentially contaminated landfill sites all around the country.

EPA provides a variety of types of support to this locally driven effort, including grants to help with assessing potential brownfields sites, seed money for revolving loan funds to help cover the cost of needed cleanups, and support to local non-profit organizations to ensure that local people are trained for the jobs that result from this reuse. As a result, communities are provided key support in cleaning up their local environment and investing in those areas in ways that most benefit the community—be that by creating new jobs, much needed housing, better transportation pathways, or natural or open space.

From Brownfield to Bakery

There is a sweet smell in the City of Kalamazoo, Michigan—along with new jobs, a new job training program, and new life for a former junkyard—and the city has reason to celebrate. In July 1997, the Kalamazoo City Commission approved the sale of a one-acre parcel for \$25,000 to MacKenzie's Bakery; the parcel now serves as the center for the company's baking operations as well as a retail outlet. The new store has already hired eight new employees in addition to the ten it relocated, and two more openings are expected in the next two to three years.

Superfund Redevelopment Initiative (SRI): In pursuing our mission of cleaning up the nation's worst hazardous waste sites, the Superfund program has always recognized the importance of considering future use opportunities. Now, with SRI, we have a coordinated national program to make sure that at every cleanup site we've worked with our partners to build an effective process and the necessary tools and information needed to fully explore future use *before* we implement a cleanup remedy. This gives us the best chance of making our remedies consistent with the likely future use of a site. In turn, we give communities the best opportunity to realize productive futures for sites that have been made safe.

SRI builds on our successful Administrative Reforms. Cleanups that support reuse will do so without compromising cleanup standards. The Agency's mission remains the protection of human health and the environment, and SRI contributes to that commitment.

We are implementing the initiative on a pilot basis. This work entails refining policies, building partnerships, sharing information about reuse successes, and informing local governments, community groups, developers, and others with a stake in Superfund site redevelopment about the options that are available.

We will provide eligible local governments with up to \$100,000 in financial aid for reuse assessment and public outreach to help determine their site's future use. We are also supporting a peer match program so that local governments that have reused a Superfund site can share their experiences with those just starting the process. Finally, we will offer access to facilitation services to support involvement of affected groups and individuals. By the end of FY 2000, we expect to have chosen up to 50 pilot sites through a competitive application process, which was announced in the *Federal Register* in December 1999.

We also are taking another look at our Superfund policies and guidelines to determine where changes can be made to further site reuse. We may revise existing guidance and policy documents (or even develop new ones) in areas such as making reuse assessments; incorporating reuse ideas into remedy selections; using Technical Assistance Grants, facilitation techniques, and Cooperative Agreements to support reuse activities; using Inter-Governmental Personnel Agreements to provide reuse advisors; and improving the Prospective Purchaser Agreement process.

Partnerships between EPA, states, tribes, other federal agencies, local governments, communities, land owners, lenders, developers, and parties that are potentially responsible for contamination has proven to be a critical factor in the reuse of Superfund sites. We will continue to build partnerships with states, tribes, and local governments and will identify roles for federal agencies with economic and community development programs. The Agency will also explore with states and private sector organizations opportunities to share information about methods available to foster site reuse, such as those that clarify liability issues for lenders and developers or protect them from liability for pollution they did not create.

The help made available through this initiative is useful only if the parties who need it are aware that it exists and if they understand its effectiveness. Therefore, we will share information about reuse at other Superfund sites, the significant positive economic impacts and benefits from reuse of sites, the assistance available, and the reuse potential of specific sites.

First, we will publicize redevelopment successes through case studies and fact sheets that will illustrate reuse options and the lessons that have been learned through pilots and other reuse projects. Second, the Agency will analyze and document the economic impacts and the environmental and social benefits of site reuse. Third, the Agency will create a searchable, online database of sites that are not yet in reuse. Finally, we will make all of this information available to the public through forums and an Internet site.

Some Superfund sites are already being redeveloped; with a coordinated national effort, we can work with our partners to accomplish even more. Through the initiative, we can work with our partners to determine what the future use of sites is likely to be, and together we can choose protective cleanups that support planned reuses.

In Worcester, Working Together to Preserve Greenspace

The City of Worcester, Massachusetts, is providing examples of how partnerships between federal, state, and private entities and the local community can produce results far beyond what a single organization might expect. In June 1996, EPA awarded a \$200,000 Brownfields Pilot grant to the Central Massachusetts Economic Development Authority (CMEDA), an organization established one year earlier by the state to oversee the area's brownfields efforts. The Brownfields Pilot has helped CMEDA form partnerships to leverage millions to restore an abandoned mill property into a recreational greenspace. A key outcome of this effort will be a unique museum that celebrates the rich industrial history of Worcester.

Returning Superfund Sites to Productive Use

Chisman Creek is located north of Norfolk, Virginia, and consists of three parcels of land covering 27 acres. For more than 15 years 500,000 tons of fly ash, a soot-like by-product that results from burning fossil fuels, were deposited in abandoned sand and gravel pits on the property. The result was heavy metal contamination in the creek, the groundwater, and several on-site ponds.

Local residents and business representatives formed a Stewardship Committee to oversee cleanup and redevelopment of the site. Residents wanted to continue to use the area for recreation, and a sports park was the perfect solution. Today, the 13-acre Chisman Creek sports park has two lighted softball fields, restrooms, and a parking lot. A second 28-acre park has four soccer fields, restrooms, a parking lot, two ponds, and the County's Memorial Tree Grove. The cleanup and redevelopment created 90 jobs annually for four years and increased residential property values within two miles of the site by about \$560,000.

Environmental Justice Efforts: OSWER is ensuring that the redevelopment of brownfields is not being impeded by environmental justice complaints. The Office conducted a series of case studies to determine whether and how to address concerns that these complaints may deter businesses from redeveloping brownfield sites. The study, "The Brownfields Title VI Case Studies," showed that community residents were not likely to file Title VI complaints because they were actively involved in the redevelopment process and could identify and address their concerns, and that residents were more interested in the economic benefit.

Across OSWER, and in our regions, literally hundreds of activities are underway to address environmental justice issues. Since 1994, when OSWER created its Environmental Justice Action Agenda, every part of OSWER has worked to incorporate environmental justice into its efforts. These activities and policy approaches vary widely. These include such practices as requiring that each application for a Brownfields Assessment Pilot include community involvement and environmental justice plans that identify community-based partners in the redevelopment process. Another example is the Superfund Relocation Policy, which was crafted with significant input from the National Environmental Justice Advisory Council (NEJAC). OSWER has worked closely with NEJAC to support its development of recommendations on the operating and siting of Waste Transfer Stations in low-income and minority communities. We have also partnered on the creation of a booklet that encourages operators of hazardous waste facilities to consider various quality of life factors and impacts prior to locating new facilities in environmental justice-associated communities.

These are but a few examples of an ongoing commitment throughout OSWER to recognize the effects of environmental activities and to work to mitigate or minimize the harmful affects, especially on disadvantaged communities that may already be overburdened by pollution.

Industrial Ecology (IE): To clearly frame issues associated with materials and waste management, OSWER has begun to consider IE principles as we look to the future of waste management. We are looking at the connections between wastes being generated from extraction through processing, manufacturing, use, and disposal to find the most efficient and effective ways to take the next major step in environmental improvement.

The goal of IE is to minimize harmful wastes and to use and reuse to the greatest extent possible both industrial products and their wastes. In November 1999, OSWER co-chaired an EPA Industrial Ecology Workshop where about 150 people from across EPA and from other government and nongovernment institutions gathered to consider how the principles of IE might be applied by EPA. We are also considering IE in the RCRA Vision project which is aimed at developing a new, long-term vision for waste and material management in the United States in the next century. In addition, the extended product responsibility (EPR) program supports demonstration projects and multistakeholder dialogues on the principles of EPR in certain products and materials that pose challenges to solid waste management and the Persistent Bioaccumulative Toxics (PBT) Initiative aimed at minimizing or eliminating PBT's in the environment.

Helping States and Tribes Restore the Land

OSWER is also forming productive partnerships with states and tribes to bring sites back into productive use and bolster local economies.

Enhanced State/Tribal Role: In May 1998, we released the "Plan to Enhance the Role of States and Tribes in the Superfund Program." The plan was developed so that EPA can more fully share Superfund program responsibilities with interested and capable states and tribes, enabling the cleanup of more sites. In FY 1999, we continued to implement and evaluate the plan. Currently, 18 pilots have been approved with 9 states and 9 tribes.

Conclusion

OSWER programs have adapted to changing times. Increased public concern about the future of our environment, advances in science and technology, and greater private sector willingness to prevent pollution have presented opportunities for OSWER to develop innovative approaches to traditional environmental problems.

Changing conditions have also produced new challenges and expectations. We are meeting these challenges by using tailored, flexible approaches and making broader program reforms—using

smarter strategies to protect the environment safely and more efficiently.

Forging stronger partnerships with state and local governments, Native American tribes, and industries has allowed us to combine resources and test new ideas. OSWER's holistic approach to working with and investing in local communities has leveraged economic development and environmental protection agendas to clean up abandoned properties, create jobs, and protect open spaces.

OSWER's new strategies, new partnerships, and innovative approaches have put us on a solid path to making communities safer and more livable, protecting public health and the environment, saving and creating open space, and bolstering local economies. But the job is not done. Through our commitment to the spirit of innovation we will continue to work every day towards making communities more livable.

OSWER is committed to innovation as we continue to protect public health and the environment.